

**REMARKS:**

In the Office Action dated September 21, 2005, claims 1-13 were rejected under 35 U.S.C. §112, second paragraph as being indefinite because of phrases in claim 1 and 9 that were questioned by the Examiner.

5 In response, claim 1 has been cancelled and a new independent claim 14 is submitted herein, wherein the phrases in original claim 1 that were questioned by the Examiner have been clarified. Claim 14 is submitted to be in full compliance with all provisions of §112, second paragraph.

10 In response to the rejection of claim 9, the phrase "claim 1" has been substituted for the phrase "claim 1 through 8". Claim 9 is therefore submitted to be in full compliance with all provisions of §112, second paragraph as well.

15 Claims 1-13 also were rejected under 35 U.S.C. §103(a) as being unpatentable over PCT Application WO 02/20868 A1. The Examiner stated that United States Patent No. 6,936,304 was used by the Examiner as a translation of this PCT application, to which Applicants have no objection.

20 The Examiner stated the PCT application discloses a method for depositing a luminophore layer from a vapor phase on a substrate, and noted that the precursor material in this method is an alkali halide. The Examiner acknowledged that the PCT application does not teach vaporizing an alkali halogenide phase together with an alkali halogenide, but stated that in view of the teaching of the PCT application to use an alkali halide, a person of ordinary skill would realize that if more precursor material is required, one could utilize two source materials of the same material. The Examiner stated that to use more than one source would have been obvious because "it is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced."

25 This rejection is traversed for several reasons. First, the purpose in the inventive method of vaporizing an alkali halogenide phase with an alkali halogenide is not based on the goal of simply providing more precursor material. Secondly, as discussed in the present specification, even if this were the goal, and even if the simultaneous vaporizing of an alkali halogenide phase with an alkali halogenide was a "mere duplication of parts" as

contended by the Examiner, the present specification makes clear that, in fact, a new and unexpected result is produced by the inventive method.

As explained in the paragraph bridging pages 2 and 3 of the substitute specification, the inventors have found that in tests on storage luminophore powders, it has been shown that microscopically small phases of the doping material can be formed in the alkali halogenide. As also stated in this passage, in vacuum-deposited layers of CsBr:Eu, these phases have not been previously found. This is believed to be due to the Eu concentration in the layer being no more than a maximum of 3000 ppm (0.3 mol%), due to production factors such as the different vapor pressures of CsBr and EuBr<sub>2</sub>. Moreover, with the use of such powder phases an optimal PSL signal was present only in the case of Eu concentrations of less than 1 mol%.

As also noted in the paragraph beginning at page 3, line 9 of the substitute specification, vaporization of the alkali halogenide phase is not disclosed or suggested in any of the references discussed in the introductory portion of the present specification, but instead a formation of such a phase in the actual vacuum-deposited layer is disclosed. The PCT application cited by the Examiner does not even discuss this problem or issue, and therefore provides no teaching or guidance in any respect toward solving the aforementioned problem.

For the above reasons that are discussed in the present specification, it is not possible, or at least practical, if more Eu, for example, is desired to be vacuum-deposited, simply to increase the amount of Eu-containing materials that are vaporized, due to the partial pressure differences that must necessarily exist. Only the present Applicants have found a way to solve the problem of maintaining a high x-ray absorption while simultaneously producing a strong emitted light signal over the noise. Obviously, simply adding more material to the vacuum-deposited layer can improve the x-ray absorption, but since this increases the thickness of the deposited layer, it degrades, or at least has the potential to degrade, the amount and/or quality of the emitted light.

Applicants respectfully submit that in view of the complete absence of a discussion of this problem and therefore a complete absence of any guidance toward a solution to this problem, in the PCT application, and since the Examiner's alleged motivations for modifying that reference are factually incorrect, the Examiner has not substantiated the rejection of claims 1-13 under 35 U.S.C. §103(a) in accordance the rigorous evidentiary requirements that the Federal Circuit has stated are essential in the context of a rejection under 35 U.S.C. §103(a).

This evidence must conform to the standards provided by the United States Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966):

Under §103, the scope and content of the prior art are to be determined, differences between the prior art and the claims at issue are too ascertained, and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or non-obviousness, these inquiries may have relevancy.

The Federal Circuit stated in *In re Lee* 227 F.3d 1338, 61 U.S.P.Q. 2d 1430 (Fed. Cir. 2002):

"The factual inquiry whether to combine references must be thorough and searching. ...It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with."

Similarly, quoting *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 30 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998), the Federal Circuit in *Brown & Williamson Tobacco Court v. Philip Morris, Inc.*, 229 F.3d 1120, 1124-1125, 56 U.S.P.Q. 2d 1456, 1459 (Fed. Cir. 2000) stated:

35 [A] showing of a suggestion, teaching or motivation to combine the prior art references is an 'essential component of an obviousness holding'.

In *In re Dembicza*k, 175 F.3d 994, 999, 50 U.S.P.Q. 2d 1614, 1617 (Fed. Cir. 1999) the Federal Circuit stated:

Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.

Consistently, in *In re Rouffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q. 2d 1453, 1459 (Fed. Cir. 1998), the Federal Circuit stated:

[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill in the art, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.

In *Winner International Royalty Corp. v. Wang*, 200 F.3d 1340, 1348-1349, 53 U.S.P.Q. 2d 1580, 1586 (Fed. Cir. 2000), the Federal Circuit stated:

Although a reference need not expressly teach that the disclosure contained therein should be combined with another, ... the showing of combinability, in whatever form, must nevertheless be clear and particular.

Lastly, in *Crown Operations International, Ltd. v. Solutia, Inc.*, 289 F.3d 1367, 1376, 62 U.S.P.Q. 2d 1917 (Fed. Cir. 2002), the Federal Circuit stated:

There must be a teaching or suggestion within the prior art, within the nature of the problem to be solved, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources, to select particular elements, and to combine them as combined by the inventor.

The same rigorous evidentiary standards are required to substantiate a rejection based on obviousness-type double patenting. Claims 1-13 were rejected under this doctrine as being unpatentable over claims 1-6 of United States Patent No. 6,936,304 as well as being unpatentable over claims 1-13 of United States Patent No. 6,720,026. With regard to the '304 patent, the Examiner merely stated, without any evidentiary substantiation whatsoever, that claims 1-13 of the present application are not patentably distinct from claims 1-16 of the '304 patent "because the elimination of a polishing agent is an obvious variation." Similarly, with regard to the '026 patent, the Examiner

stated, without any evidentiary substantiation, that claims 1-13 of the present application are not patentably distinct from claims 1-13 of the '026 patent "because the use of a luminophore is an obvious variation."

With regard to the '304 patent, eliminating the abrading step in either of  
5 independent claims 1 or 11 would simply leave the step of depositing a  
luminophore from a vapor phase on a substrate so that at least 30 weight %  
of the utilized luminophore is deposited. This remaining language of the  
independent claims is completely silent regarding the use of an alkali  
halogenide, and also is completely silent with regard to simultaneously  
10 vaporizing an alkali halogenide phase together with an alkali halogenide, as  
required in original claim 1 of the present application, and claim 14 submitted  
in the present Amendment. The Examiner has not provided proper  
evidentiary substantiation as to why either of those missing items from the  
claims of the '304 claims would have been obvious to a person of ordinary  
15 skill in the relevant technology.

The Examiner's statement with regard to the '026 patent, aside from  
lacking evidentiary support, is not even understandable. Perhaps the  
Examiner meant that the selection of a particular luminophore is an obvious  
variation, but even if so, this is irrelevant to the subject matter of claim 1 of the  
20 present application, which describes a method for making a luminophore by  
the aforementioned simultaneously vapor deposition of an alkali halogenide  
phase together with an alkali halogenide. No such method is disclosed or  
suggested anywhere in the '026 patent, and therefore such a method is not  
embodied in the claims of that patent, and the Examiner has not provided any  
25 evidentiary support that such a method would have been obvious in view of  
the content of the '026 claims.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,



(Reg. 28,982)

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